

Appl. No. 10/625,977  
Amdt. dated January 12, 2005  
Reply to Office Action dated October 19, 2004

### **Remarks/Arguments**

These remarks are in response to the Office Action dated October 19, 2004.  
This reply is timely filed.

At the time of the Office Action, claims 1-23 were pending in the application. Claim 5 was objected to for informalities. Claim 9 was rejected under 35 U.S.C. §112, second paragraph. Claims 1 and 4 were rejected under 35 U.S.C. §102(e). Claims 1-5, 10-13, 14-18, 22 and 23 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting. Applicant notes with appreciation that claims 6-8 and 19-21 were objected to as being dependent upon rejected base claim, but the Examiner has indicated these claims would be allowable if rewritten in independent form to include all of the limitations of their base claims and any intervening claims. The rejections are set out in more detail below.

#### **I. Specification**

The abstract of the disclosure was objected to because the abstract contains phrases which can be implied, such as "The invention concerns" in line 1. The abstract has been amended and is believed to overcome the objections.

#### **II. Claims Objections**

Claim 5 was objected to because in line 2, "said second" lacks antecedent basis. Appropriate correction has been made to Claim 5. Claim 5 has also been amended for greater clarity.

#### **III. Claim Rejections Under 35 U.S.C. §112**

Claim 9 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner objects to the recitation in claim 9 that the dielectric structure is arranged in the form of a grid pattern. The Examiner considers this recitation to be indefinite because the network of channels defined within the dielectric substrate is the element that is arranged in the form of a

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grid pattern, not the substrate structure itself. In response, Applicants have now cancelled claim 9 which is believed to be redundant in view of claim 7.

#### IV. Brief Review of Applicants' Invention

Prior to addressing the Examiner's rejections on the art, a brief review of Applicants' invention is appropriate. The invention concerns an antenna system with dynamically adjustable ground plane spacing. A first conductive ground plane is spaced from at least one radiating element. The first conductive ground plane is formed from a conductive fluid. According to one embodiment, a fluid control system can be provided for selectively purging the conductive fluid from the dielectric structure to expose the antenna radiating element to a second ground plane.

#### V. Rejections under 35 U.S.C. §102(e)

Claims 1 and 4 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Pub. No. 2003/0160724 to Alexeff, et al. (hereinafter "Alexeff et al."). That reference discloses a plasma antenna system. Plasma is an electrically neutral, highly ionized gas composed of ions, electrons, and neutral particles. It is a phase of matter distinct from solids, liquids, and normal gases. The system described in Alexeff et al. includes a composition disposed within a region of space for forming plasma. A power medium is positioned with respect to the region of space and an energy source is provided so that the plasma can be formed. The plasma can be used to form an electromagnetic wave filter, a reflector, or even a phase shifter. Alexeff et al., ¶ [0019] Alexeff et al. relies on the power medium (e.g., electrodes, lasers, RF heating) as the control mechanism for the device. See Alexeff et al., ¶ [0025].

In contrast to Alexeff et al., Applicants' amended claim 1 does not control the ground plane of the antenna system using a power medium. Instead, amended claim 1 recites a fluid control system that controls a presence and absence of the conductive ground plane by selectively adding and removing the conductive fluid to the dielectric structure. In Alexeff et al., the antenna ground plane is controlled by changing a state of the composition to form plasma. Applicants' invention is different from Alexeff et al. because the conductive fluid is simply moved in or out of the dielectric structure to

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control the presence or absence of the conductive ground plane. For the foregoing reasons, Applicants believe that claim 1 is not anticipated by Alexeff et al.

**VI. Double Patenting**

Claims 1-5, 10-13, 14-18, 22 and 23 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-35 of copending Application No. 10/330,755. In accordance with 37 C.F.R. §1.130, please find the enclosed terminal disclaimer which complies with 37 C.F.R. 1.321(c) and overcomes the provisional rejections. Please charge Deposit Acct. 50-2884 for the appropriate amount pursuant to 37 CFR §1.20(d). Applicants therefore respectfully request that the provisional rejections be withdrawn.

**VII. Allowable Subject Matter**

In the Office Action, the Examiner has indicated that claims 6-8 and 19-21 were objected to as being dependent upon rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of their base claims and any intervening claims. In response, claim 6 has now been amended to include the limitations of claims 1 and 4. Accordingly, claims 6-8 are now believed to be in condition for allowance. Claims 19-21 have not been amended as such claims are believed to be allowable in view of the terminal disclaimer submitted herewith that overcomes the double patenting rejection with regard to the base claim 14.

**VIII. Conclusion**

Applicant has made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. Nevertheless, Applicant invites the Examiner to call the undersigned if it is believed that a telephonic


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interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicant respectfully requests reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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Date

  
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